Keynote Speaker-1

Computer Go Game and Competition

Prof Dr Yeh-Ching Chung

National Tsing Hua University, Taiwan

ychung@cs.nthu.edu.tw

Abstract - Go game known in Chinese as weiqi is an ancient board game for two players who alternately place black and white stones on the vacant intersections of a grid of 19×19 lines. Once placed on the board, stones cannot be moved elsewhere, unless they are surrounded and captured by the opponent's stones. Placing stones close together helps them support each other and avoid capture. On the other hand, placing stones far apart creates influence across more of the board. The strategic difficulty of the game stems from finding a balance between such conflicting interests. Players strive to serve both defensive and offensive purposes and choose between tactical urgency and strategic plans. The object of the game is to control (surround) a larger portion of the board than the opponent.

Fig. 1. The Go game

The Go game has long been considered a difficult challenge in the field of AI and is considerably more difficult to solve than chess. Many computer Go game systems have been designed by using different methods to determine next move. In this talk, I will first introduce 4 popular methods, the minimax tree search, the Monte-Carlo methods, the knowledge-based systems, and the machine learning, used by computer Go game systems. Then, I will briefly introduce 4 top computer Go game systems, MoGo from France, Feugo from Canada, Zen from Japan, and Many Faces of Go from USA, in the world. At the end, I will report the results of Human vs. Computer Go Competition held in Workshop on Emergent Application of Computational Intelligent in Computer Go of WCCI 2010.

Author's Biography

Dr. Yeh-Ching Chung received a B.S. degree in Information Engineering from Chung Yuan Christian University in 1983, and the M.S. and Ph.D. degrees in Computer and Information Science from Syracuse University in 1988 and 1992, respectively. He joined the Department of Information Engineering at Feng Chia University as an associate professor in 1992 and became a full professor in 1999. From 1998 to 2001, he served as the chairman of the department. In 2002, he joined the Department of Computer Science at National Tsing Hua University as a full professor. He is the deputy director of Library since 2004. His research interests include Parallel Computing and Applications, Grid Computing, Cloud Computing, Multi-Core Tool Chain, and Embedded Systems.

Dr. Chung has designed many large-scale systems such as HLA-ROC (a scalable RTI system), Taiwan UniGrid, Taiwan Medicare Grid, etc., for Taiwan government. He also designed many useful multi-core tools for embedded systems such as P-QEMU (a parallel version of QEMU), KVM-ARM (a KVM version hypervisor for ARM), AOTC compiler for Android, JMP (a Java OpenMP compiler), etc., for industrial companies. Currently, he leads a team with 13 professors to develop Taiwan UniCloud middleware under the support of National Science Council (NSC), Taiwan. He has been serving as general co-chairs, program co-chairs, and technical program committee members for many international conferences such as ICPP, IPDPS, ICDCS, etc., since 2000. He is a senior member of the IEEE computer society.

Keynote Speaker-2

Wireless Communication, Multimedia and Web Technologies for Museums

Jürgen Sieck

University of Applied Sciences HTW Berlin
j.sieck@htw-berlin.de

This presentation describes several technical aspects of mobile devices, sensor networks, web technologies, multimedia applications, and context sensitive services in information systems for museums developed at the author's university. Additionally, it will include several ideas and techniques in Green IT. It examines key features of the technologies and the systems, shows multiple methods of using mobile devices, sensor systems and multimedia as well as future research potentials.

The development of sensor technology, mobile devices, multimedia and web technologies during the past 25 years has continually affected the creation of new mobile multimedia applications based on emergent technologies. While newly developed device types with different technical specifications have surrounded us in our everyday life and private environment, new base technologies have also been established step-by-step. Industrial standards and paradigms tremendously affect inventions and developments in the mobile sector nowadays, starting in the field of ergonomic hardware design for the mobile market and ending with common patterns for highly effective software engineering and electrical power-efficient hard- and software. By combining the advantages of established technologies with these new approaches and furthermore adapting those criteria to the different user needs and application scenarios, including the special context of the location of the users and the specific environmental conditions, we are able to extend existing applications with new mobile components and services. Moreover, highly innovative concepts can be realised and integrated in a given environment with minimal electrical power consumption.

Speaker's Biography

JürgenSieck received his degree in mathematics in 1981 and his PhD in computer science in 1989 from the Humboldt University Berlin, Germany. Since 1994 JürgenSieck has been a professor of computer science at the University of Applied Sciences (HTW) Berlin and head of the Research group "INKA- Information and Communication Applications". He teaches algorithms and data structures, multimedia, virtual reality and telecommunication. JürgenSieck also taught and researched abroad, he was guest professor at the Johannes Kepler University Linz, Austria, visiting professor at the Old Dominion University Norfolk, USA, at the ICSI in Berkeley, USA, at the Monash University Melbourne, Australia and at the University of Cape Town, Southafrika. His research interests are in multimedia, computer graphics, virtual reality and wireless communication. In 1998, he received the Otto von Guericke-Preis of the AIF, the German federal foundation of industrial research and development, for a system with 3D-visualisation and presentation of construction projects. In 2009, he received the research award from HTW Berlin. Since 2001 he is chairman of the supervisory board of "Jung und Partner Software & Consulting AG" and since 2002 he is co-chairman of the executive committee of "Alcatel-Lucent" foundation, sub-division Berlin.
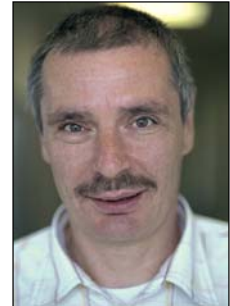
Tutorial

Secure Multiparty Computation for Cloud Computing Paradigm

By:
Dr. Durgesh Kumar Mishra
Professor and Head (CSE)
Acropolis Institute of Technology and Research, Indore, MP, India

Chairman IEEE Computer Society, Bombay Chapter, India
Vice Chairman, IEEE MP Subsection, MP, India

Keywords: Cloud Computing, Privacy, Security, Secure Multi-party Computation, Anonymity.

Summary: Secure Multiparty Computation (SMC) allows multiple parties to perform computation on their private data to evaluate some function of their common interest. In this paradigm the individual data should be kept secret from other parties and the result of the computation should be available to all the parties. This subject of information security has created enormous interest among researchers. Many SMC models were devised and analyzed. The subject is becoming more relevant in this scenario of huge online transactions on the Internet. Many solutions, from earlier Millionaires Problem to recent Anonymity based computation on encrypted data are available in the literature.
Cloud Computing is a paradigm shift from the distributed computing where an organization uses resources as service. This is a sort of "utility computing" where you pay-as-you-go like electricity bill. Cloud providers are the companies which manage large datacenters and have expertise of operating these datacenters. Cloud users are the organizations which use services from providers. Cloud users need not to deploy computing resources at their site. These resources are available from the cloud providers on utility basis and charged on usage basis. Thus an organization can improve efficiency while minimizing the expenditure and the operation overhead. They can focus on their core competencies. In this paradigm users send their data to the provider for computation and the result is provided by the provider. Many companies like Amazon, Google, IBM etc. are already in the market working as the cloud provider. As the services are gaining more popularity, concerns regarding the privacy of these data are also arising. They users of the cloud are worrying about the privacy of their data that has been supplied to the cloud provider.
The solutions to these problems can be provided by the protocols of the SMC. In this tutorial, we propose SMC solution techniques that can be embedded while designing architecture of cloud computing especially when multiple cloud providers or multiple cloud users jointly compute some function of their private data inputs. Each of the users or providers of the cloud is worried about the privacy of the individual data but due to the mutual interest all of them want to know the value of the common function. With our experience of developing protocols and devising algorithms for various SMC problems we anticipate a crucial role of SMC in cloud computing. For example consider a case where multiple cloud users jointly work on a project and utilize the services of the same cloud provider. All of them want to simultaneously evaluate their equations

without revealing individual equations to one another. In such scenarios the SMC solutions can be highly useful to provide privacy. In this tutorial, we explore such scenarios while discussing various protocols of SMC and their applicability in cloud computing.

Speaker's Biography

Dr. Durgesh Kumar Mishra

Biography: Dr. Durgesh Kumar Mishra has received M.Tech. degree in Computer Science from DAVV, Indore in 1994 and PhD degree in Computer Engineering in 2008. Presently he is working as Professor (CSE) and Dean (R&D) in Acropolis Institute of Technology and Research, Indore, MP, India. He is having around 21 Yrs of teaching experience and more than 6 Yrs of research experience. He has completed his research work with Dr. M. Chandwani, Director, IET-DAVV Indore, MP, India in Secure Multi- Party Computation. He has published more than 75 papers in refereed International/National Journal and Conference including IEEE, ACM etc. He is a Senior Member of IEEE, Chairman of IEEE Computer Society, Bombay Chapter, India. He is a Life member of ISTE. Dr. Mishra has delivered his tutorials in IEEE International conferences in India as well as other countries also. He is also the programme committee member of several International conferences. He visited and delivered his invited talk in Taiwan, Bangladesh, Singapore, Malaysia, USA, UK and several places in India in Secure Multi-Party Computation of Information Security. He is an author of one book also. He is also the reviewer of Five International Journals of Information Security. He is a Chief Editor of Journal of Technology and Engineering Sciences. He has been a consultant to industries and Government organization like Commercial tax and Labor Department of Government of Madhya Pradesh, India.

Short Plenary Presentation

MIR Labs - Indonesia: Challenges and Opportunities

Ford Lumban Gaol
MIR Labs Indonesia Coordinator

http://www.mirlabs.org/network/Asia/Indonesia/FordLumbanGaol.php
Research Coordinator for Graduate Program in Informatics Engineering and Information System, Bina Nusantara University, www.binus.ac.id

The increase of ICT and digital data storage, in industrial, financial, healthcare or other application areas with the increasing amounts of collection of images, signals and other types of data certainly provides several research challenges. There is a need to design intelligent tools to extract the underlying information, predict, diagnose, estimate or make use of it in some other way, in order to optimize or improve services. Most structure in the data are mostly unstructured, hidden under noise, due to the stochastic nature of the processes and their measurement and because of this robust and adaptive tools are needed that can cope with this nature.

We are very grateful to the advanced technological innovation that is enriching our operational activities and the development of the communities. We also take the advantage of Internet as the tools and framework to integrate, control or operate virtually any device, appliance, monitoring systems, infrastructures etc. An Internet base that operates our cyber society is not far away. Such a complex system has to be autonomous and able to continuously adapt, providing the required quality of service levels according to different service level agreements, without requiring the need of much human intervention. This is a very challenging problem. The challenge is to design intelligent machines and networks that are able to connect and adapt according to information, self-organized and able to identify the cause in case of a system, service or component failure due to natural cause or a malicious attack. At this moment a lot of focused research works is going in different areas and most of these results are confined to the institutions and laboratories.

Machine Intelligent Research Laboratory (MIR Labs) is a global non-profit academic consortium focused on innovation and research excellence. MIR Labs comprises of a network comprising of several leading academicians and scientists from the academia and industry from different continents, over than 70 countries.

The main objectives of Machine Intelligence Research Laboratory (MIR Labs) are as follows.

- To initiate new innovative research directions by networking together the critical mass of resources.

- To strengthen scientific and technological excellence on a particular research area, which is important to a particular geographical region, area, country, etc.

- To integrate the various research efforts of the scientific team to be a source of innovation on possible scientific, technological and socio-economic trajectories to mould the future of Machine Intelligence.

- To promote and sponsor scientific activities (conferences and workshops) in developing and under represented countries by offering mentoring, technical assistance, etc.

One of the Chapter of MIR Labs is MIR Labs-Indonesia. In order to realize and align with the MIR Labs objectives, MIR Labs-Indonesia has already started planning some activities for the future.

In June 2010, MIR Labs-Indonesia was the technical sponsor for the ISTMI International Workshop, which was organized by the Indonesian Ministry of Industry. Prof. Vaclav Snasel and Dr. Ford Lumban Gaol were the speakers representing MIR Labs-Indonesia. Dr. Bernadetta Kwintiana from MIR Labs also contributed immensely for the success of this workshop.

Recently, MIR Labs-Indonesia was invited to participate in the Small Medium Enterprises (SMEs) in the International Conference for Small Medium Enterprises hosted by the Indonesian Ministry of Cooperative and Small Medium Enterprises. We also plan to host an international conference in Indonesia that jointly-organized with one of the Indonesian universities.

To foster a close collaboration between research and industry, MIR Labs-Indonesia has a close relationship with the Indonesian Industrial Engineers Association (*Ikatan Sarjana Teknik Industri dan Manajemen Industri Indonesia*) and the Indonesian Association of Industrial Engineering Higher Education Institution (*Badan Kerjasama Penyelenggara Pendidikan Tinggi Teknik Industri*). Moreover, at this moment the Graduate Program of Computational Intelligence, Bina Nusantara University intend to make research collaboration with MIR Labs-Indonesia regarding with these topics and for further PhD research activities.

MIR Labs is also open for other research or academic institution for cooperation in terms of research collaboration and joint-hosting of international conferences.

Speaker's Biography

Ford Lumban Gaol received the B.Sc. in Mathematics, Master of Computer Science. and the Doctor in Computer Science from the University of Indonesia, Indonesia in 1997, 2001 and 2009, respectively. He is currently Assistant Professor in Computer Science in the Graduate Program in Informatics Engineering and Information System, Bina Nusantara University www.binus.ac.id. He is the co-founder of JIBES School of Computer and Informatics Management www.jibes.ac.id

His research interests include Graph Theory, Data mining, Artificial Intelligence, softcomputing, and machine learning. He has more than 60 technical & scientific papers.

He has served on technical program committees for many International Conferences held under the auspices of IEEE, ACM or Springer sponsor. These include serving as:

1. Organizing Co-Chair, ARTCom 2009 (India)
http://www.theaceee.org/conf/artcom/2009/committee.htm

2. Program Committee Member, WiMoN-2009 (Greece) http://airccse.org/wimprogram.html

3. Organizing Co-Chair, Advances in Computer Engineering, ACE 2010 (Singapore) http://www.icace.co.in/cfp.htm

4. Organizing Chair, International Conf. on Advance Communication, Network, and Computing (CNC) 2010, India http://www.icacnc.com/comm.htm.

5. Program and Organizing chair, IEEE International Conference, ACT2010, Jakarta Indonesia on 2-3 Dec 2010 (http://act.engineersnetwork.org/).

6. General Chair, The International Conference on Data Engineering and Internet Technology (DEIT 2011), 15-17 March 2011 in Bali, Indonesia.
http://www.irast.org/conferences/DEIT/2011/index.htm

Dr. Ford Lumban Gaol has reviewed papers for international journals and served as:

1. Editorial Board Member, International Journal of Emerging Technologies and Applications in Engineering and Technologies (ISSN : 0974-3596).

2. Editorial Board Member, International Journal of Computer Applications in Engineering, Technology and Sciences (ISSN : 0974-3588)
http://aessangli.in/editorials.html.

3. Chief Editor, International Journal for Biotechnology
 http://aceee.engineersnetwork.org/journals/ijbt/index.htm